



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/541,145

01/03/2006

Tobias Schmidt

P&P-101

4933

23557 7590 02/18/2009
SALIWANCHIK LLOYD & SALIWANCHIK
A PROFESSIONAL ASSOCIATION
PO Box 142950
GAINESVILLE, FL 32614

EXAMINER

SASAKI, SHOGO

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

02/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/541,145 | Applicant(s) SCHMIDT ET AL. | |
| | Examiner Shogo Sasaki | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/30/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 17-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 17-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/30/08, 5/16/06, 1/3/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) filed on 5/16/2006 and 1/30/2008 fails to comply with 37 CFR 1.98(a)(3) because they do not include concise explanations of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information. The reference number DE 10315 282 included in the IDS filed on 5/16/2006; and the reference numbers R3, R6 and R10 included in the IDS filed on 1/30/2008 are not in the English language, however they do not include concise explanations of the relevance. These IDSs have been placed in the application file, but the information referred to therein has not been considered. The reference number DE 10315 282 appears to be equivalent to US2004/0223282, which is cited in the same IDS filed on 5/16/2006. If that is the case, it is suggested to omit DE 10315 282 from said IDS.

Claim Objections

2. Claim 1 is objected to because of the following informalities: The recitation "separation column" in line 2 renders said claim unclear, because it is not clear if it is the same separation column recited earlier in said claim or some other separation column. It is suggested to add "the" before "separation column."
3. Regarding claims 1 and 18, the recitation "a first sheet (6) with channels (12) and a second sheet (7) with channels (13) and which may be displaced relative to the latter" does not clearly state if (7) is the latter with respect to (6), or if something else is the latter with respect to (6)+(7). It is suggested to replace "the latter" with "the other" or "each other," since Fig. 5 and page 16, line 16-17 clearly indicate that (6) is displaced relative to (7), or vice versa. It is also suggested to make appropriate corrections to the other parts of the specification.
4. Regarding claim 9, it is suggested to replace the recitation "thick film" with something more structurally defining limitation. Examiner understands that what applicant means by "thick film" is an electronic device made via the "thick film"

technology. The patentability of said claim is based on the recited product and does not depend on its method of production. If applicant choose to present claim 9 in currently presented condition in the reply, examiner may reject the claim under 35 U.S.C. 112, second paragraph as being indefinite based on the use of relative term.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 10 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "the electronic control and evaluation unit." There is insufficient antecedent basis for this limitation in the claim. It is suggested to replace "the electronic control and evaluation unit" with "an electronic control and an evaluation unit", or to define an electronic control and an evaluation unit earlier in the claim.

Claim 17 recite the limitation "the base line." There is insufficient antecedent basis for this limitation in the claim. It is suggested to define a base line earlier in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-10, 12 and 17-22 are rejected under 35 U.S.C. 102(a) and (b) as being anticipated by Lehmann et al. (IDS: Sensor 2003 Proceedings, 157-161). It is assumed

that the publication date of the reference is 1/14/2003 or 1/16/2003; or before these dates. Applicant is required to show that the publication date (and/or online availability date) is after 1/14/2003 to overcome 102(b) rejection; and show that the publication date (and/or online availability date) is after 1/16/2003 to overcome 102(a) rejection, along with the English translation for 10301601.5.

Regarding claims 1-10, 12 and 17-22, Lehmann et al. disclose the devices recited in said claims (page 159-160).

Claims 3, 4, 20 and 21 are product-by-process claims. The patentability of said claim is based on the recited product and does not depend on its method of production.

9. Claims 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US 3916465: Fig. 1-3; and US 3800602).

Regarding claims 18- 23, Jones (US 3916465) disclose a chromatogram (column 3, line 65—column 4, line 10) comprising a chromatographic column (16); a detector (17); and a sliding valve injector (Fig. 1) for chromatography having two sliding members with ports and apertures (18, 19) with a cover (20). The plate (19) includes Teflon clad on its surface (column 5, lines 21-24: Teflon is well known for its inertness and for very low friction coefficient.). Jones (US 3800602) also discloses a chromatogram with a similar valve injector with two sliding members with ports and apertures (Fig. 1-7). Claims 20 and 21 are product-by-process claims. The patentability of said claim is based on the recited product and does not depend on its method of production.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1-4, 6-13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US 3916465: Fig. 1-3; or US 3800602) in view of Lehmann et al. (IDS: Sensor Proceedings II, 2001, 487-492).

Regarding claims 1-4, 6, 11, 12 and 17, Jones (US 3916465; and US 3800602) discloses all of the limitations as set forth above.

Jones (US 3916465) further discloses a chromatogram (column 3, line 65—column 4, line 10) comprising a chromatographic column (16); a detector (17); and said sliding valve injector. Jones (US 3916465) also discloses that the detector may measure gas's thermal conductivity (column 5, lines 26-30: A gas flow sensor works by measuring thermal conductivity of a sample, or a change in thermal conductivity of a sample carrying conduit. Also thermal conductivity detector will have to be able to detect the presence of the gas indicating the flow.). Jones (US 3800602: Fig. 1-7) also further discloses a chromatogram (column 4, line 57—column 5, line 12) comprising a chromatographic column (16); a detector (17); and said similar valve injector with two

Art Unit: 1797

sliding members with ports and apertures, and teach said detector (column 7, lines 35-39). In addition, Jones (US 3800602) shows multiple sliding valves injector used in series (Fig. 8). The sliding members of Jones (US 3916465; and US 3800602) also include multiple channels.

However, Jones does not teach that said chromatogram may be provided on a circuit board.

Lehmann et al. disclose a micro-machined gas chromatography module including a column; a flow sensor; a ball valve type injector; and a thermal conductivity detector provided on a silicon chip (abstract; and Fig. 1, 2, 4, 5 and 7).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide the micro-sized invention of Jones to the device of Lehmann et al., for the purpose of making the device portable, or reducing the sample size. A change in size is generally recognized as being within the level of ordinary skill in the art.

The claim would have been obvious because “a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.”

Claims 3 and 4 are product-by-process claims. The patentability of said claim is based on the recited product and does not depend on its method of production.

Regarding claims 7-10 and 13, Jones discloses all of the limitations as set forth above.

Lehmann et al. further disclose:

- a control and evaluation unit provided on the circuit board (Fig. 3, 6 and 8: The controlling and the evaluation will have to be present on the device of Lehmann et al.);
- at least one heating element configured such that one or more of the injector, the separation column and/or the detector can be temperature-controlled (page 487, “1. Introduction,” lines 3-6; and page 489 “3. The micro machined TCD”);

Art Unit: 1797

- at least one heating element comprises ceramic plates with thick film heating elements (page 489 “3. The micro machined TCD);
- a plurality of recesses provided in the circuit board such that the electronic control and evaluation unit is protected from the heat emitted by the heating elements (Fig. 4. The heater strips are placed near the trench in silicon chip.);
- a plurality of recesses provided in the circuit board into which a plurality of capillaries are countersunk for the gas flow (page 488, “2. The separation column,” lines 16-36).

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US 3916465: Fig. 1-3; or US 3800602) in view of Lehmann et al. (IDS: Sensor Proceedings II, 2001, 487-492), and further in view of Lehmann et al. (IDS: Micro Total Analysis System, 2000, 167-170).

Regarding claim 5, modified Jones discloses all of the limitations as set forth above. However modified Jones does not explicitly teach that the valve injector is made of silicon.

Lehmann et al. disclose a micro-machined gas chromatography module including a column; a ball valve type injector; and a thermal conductivity detector provided on a silicon chip (abstract). The injector of Lehmann et al. includes a micro-grooved sheet made of silicon (Fig. 3).

It would have been obvious to one having ordinary skill in the art at the time of the invention to choose silicon as a material for the injector as taught by Lehmann et al., for the purpose of providing a material suited for micro-etching the channels and holes. It was within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shogo Sasaki whose telephone number is (571)270-7071. The examiner can normally be reached on Mon-Thur, 10:00am-6:30pm, EST.

Art Unit: 1797

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

2/11/09

/Brian R Gordon/

Primary Examiner, Art Unit 1797